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Can we obtain MSFD indicators from cetacean strandings data?

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In relation to species, descriptor 1 (biodiversity) of the MSFD refers to three criteria: abundance, distribution and population condition. For marine mammals, indicator development has focused on the former two criteria, along with measuring bycatch mortality, based on large-scale surveys and on-board observers on fishing vessels. Strandings monitoring has had an important role under the Habitats Directive but remains under-utilised in the context of the MSFD, not only in relation to descriptor 1, but through information relevant to descriptors 4 (trophic interactions), (8,9) contaminants, (10) marine litter and (11) underwater noise. In part, this underutilization reflects concerns as to the representativeness of strandings. Here we review some of the information on status and threats that can be derived from cetacean strandings, mainly using examples from the UK: (a) population life history parameters such as mortality, reproductive rates, age at sexual maturity and growth rate; (b) individual health and condition indices, including cause of death, disease, parasites, blubber thickness, and body weight; (c) bycatch rate; (d) diet; (e) contaminants, (f) underwater noise and marine litter. Finally, we discuss some of the limitations and biases related to the occurrence of stranding, reporting and data collection, and possible solutions to validate results and correct for biases, including the application of drift models and age-structured models of mortality based on life history theory and use of trauma deaths to represent the “healthy” part of the population.

Keywords: conservation, monitoring, mortality, contaminants, life history, pathology

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